UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 10
1200 6TH AVENUE
SEATTLE, WASHINGTON 98101

DATE:	See date of Section Chief signature
SUBJECT:	CLEAN AIR ACT INSPECTION REPORT NuStar Portland Terminal, Portland, Oregon
FROM:	Daniel Heins, Environmental Scientist Air Toxics Enforcement Section, EPA Region 10
THRU:	Derrick Terada, Acting Section Chief Air Toxics Enforcement Section, EPA Region 10
TO:	File

BASIC INFORMATION

Facility Name: NuStar Portland Terminal
Facility Location: 9420 NW St. Helens Road, Portland, OR 97231

Date of Inspection: June 22, 2022

EPA Inspector(s):
1. Daniel Heins, Environmental Scientist

Other Attendees:
1. Ryan Groesbeck, Terminal Manager – Nustar
2. Kyle Bell, Operations Supervisor – NuStar
3. Mike Wise, Operator – NuStar
4. Stephan Rosen, HSE Manager, West Region – NuStar
5. John Browning, Consultant – Bridgewater Group
6. George Yun, Air Quality Inspector – Oregon Department of Environmental Quality (DEQ)
7. Chris Moore, Air Quality Inspector – DEQ

Contact Email Address: Ryan.Groesbeck@nustarenergy.com

Purpose of Inspection: Tanks inspection

Facility Type: Bulk fuels terminal / gasoline distribution facility

Arrival Time: 10:40
Departure Time: 13:15

Inspection Type: Announced Inspection

OPENING CONFERENCE

☒ Presented Credentials
☒ Stated authority and purpose of inspection
☐ Provided Small Business Resource Information Sheet
☒ Small Business Resource Information Sheet not provided. Reason: Not a small business
☒ Provided CBI warning to facility

The following information was obtained verbally from NuStar representatives.

Name/Ownership Notes:
Shore Terminals is the legal name for NuStar's Portland facility, NuStar has owned and operated the Facility since 2008.

Process Description:
NuStar receives, stores, blends, and/or distributes gasoline, diesel, transmix, ethanol, and biodiesel at its Portland Terminal ("the Facility"). The Facility receives petroleum products via the Olympic Pipeline; all products via marine vessels; and ethanol/biodiesel primarily by rail, but also truck. The Facility sends petroleum products to Eugene via pipeline. All products are loaded out onto trucks. Diesel is the only product also loaded onto marine vessels. The Facility has a vapor combustion unit (VCU) and a backup vapor recovery unit for the truck rack. The VCU is permitted for marine loading use, but is not connected as they only load diesel.

TOUR INFORMATION

EPA Tour of the Facility: Yes

Data Collected and Observations:
EPA made observations with a FLIR GF320 optical gas imaging camera ("the FLIR"), capable of seeing hydrocarbon emissions plumes. EPA also used a Thermofisher TVA2020 flame ionization device ("the TVA") to measure the total hydrocarbon concentration in parts per million as methane (ppm) from vents or through hatches at the tops of tanks.

Daniel Heins, accompanied by DEQ and the NuStar personnel, began at the southeast end of the Facility and moved toward the northwest end as the site tour progressed. See Appendix A for site maps. All readings and videos are summarized in Appendices B & C.

In Tank Yard 5, Daniel Heins observed plumes from gasoline tanks 10026 and 10027 with the FLIR, and took readings using the TVA from the center vents on the roofs of each of these tanks.

In Tank Yard 4, the tank roofs are interlinked by causeways. Daniel Heins walked between tanks to directly take readings with the TVA from tank roof center vents. Tanks 1011 and 3201 contained ethanol; Tank 1009 contained transmix; Tanks 2706, 4507, 6408, 4402, 3203, and 3404 contained gasoline.

In Tank Yard 3, Daniel Heins observed plumes from tanks 8308, 5209, and 8006 with the FLIR, all of which contained gasoline. The FLIR camera exhausted its battery at this time. Daniel Heins took TVA readings at the center vents of those three tanks. Daniel Heins also took TVA readings of tank 8007 (gasoline), with the Facility opening a hatch to allow for the reading.

In Tank Yard 2, Daniel Heins took TVA readings from the center vents of tanks 2020, 2021, 2022, and 5618 (all gasoline), as well as 5618 (a diesel tank en route to a 5618).

In Tank Yard 1, Daniel Heins took TVA readings at the hatch of tank 5901.

Photos and/or Videos: were taken during the inspection. See Appendix B.
Field Measurements: were taken during this inspection. See Appendix C.

RECORDS REVIEW

Ahead of the inspection, Daniel Heins requested and reviewed a site map and a list of storage tanks with details of tank product, construction, size, and applicable air regulations.

CLOSING CONFERENCE

☒ Provided U.S. EPA point of contact to the facility

Requested documents:
Daniel Heins requested tank levels of selected tanks at the Facility from the time of the inspection.

Concerns:
Daniel Heins noted the moderately to significantly elevated hydrocarbon concentrations at many of the tanks, and that concentrations would likely be significantly higher towards the bottom of the tank headspace. Daniel Heins noted that this could potentially be an indication of an issue in the performance of the internal floating roof in suppressing emissions and that there is potential that the concentrations may be high enough at the bottom to pose a safety concern.

DIGITAL SIGNATURES

Heins, Daniel

Digitally signed by Heins, Daniel
Date: 2022.07.14 12:19:52 -07'00'

Daniel Heins, Report Author

DERRICK TERADA

Digitally signed by DERRICK TERADA
Date: 2022.07.18 11:53:52 -07'00'

Derrick Terada, Acting Section Chief

APPENDICES AND ATTACHMENTS

Appendix A: Site Map
Appendix B: Digital Image Log
The files listed in this log are attachments to this report.
Appendix C: Field Measurement Data

APPENDIX A: SITE MAP

Above is the site map of the NuStar Portland Terminal provided by NuStar to Daniel Heins in advance of the inspection. The Willamette River (bottom of image) is to the northeast of the Facility.

APPENDIX B: DIGITAL IMAGE LOG

Inspector Name: Daniel Heins
Archival Record Location: US EPA Sharepoint
Camera type: FLIR GF320 optical gas imaging camera, for detecting hydrocarbon and VOC emissions.

File Name	Date/Time	Tank	Description
MOV_0694.mp4	6/22/2022 11:24	Tank 10026 (Gasoline)	Plume out central vent, viewed from next to it
MOV_0695.mp4	6/22/2022 11:30	Tank 10027 (Gasoline)	Plume out central vent, viewed from next to it
MOV_0696.mp4	6/22/2022 11:56	Tank 8308 (Gasoline)	Plume out rim vent, viewed from ground
MOV_0697.mp4	6/22/2022 12:09	Tank 5209 (Gasoline)	Plumes out rim vents, viewed from ground
MOV_0698.mp4	6/22/2022 12:18	Tank 8006 (Gasoline)	Plumes out rim vents, viewed from ground

APPENDIX C: FIELD MEASUREMENT DATA

Tank #	Product	TVA PPM	TVA Reading Location	IFR Type	Notes
10026	Gasoline	2600	center vent	aluminum pontoon	
10027	Gasoline	810	center vent	aluminum pontoon	
1011	Ethanol	35	center vent	steel pan	
2706	Gasoline	540	center vent	aluminum pontoon	
4507	Gasoline	450	center vent	steel pan	
6408	Gasoline	175	center vent	steel pan	
1009	Transmix	220	center vent	steel pan	Pipeline surge transmix
4402	Gasoline	440	center vent	steel pan	
3203	Gasoline	120	center vent	steel pan	
3204	Gasoline	65	center vent	steel pan	
3201	Ethanol	50	center vent	steel pan	
8308	Gasoline	770	center vent	aluminum pontoon	500 at hatch
5209	Gasoline	1000	center vent	aluminum pontoon	
8006	Gasoline	1660	center vent	aluminum pontoon	
8007	Gasoline	90	hatch	steel pontoon	
2022	Gasoline	500	center vent	aluminum pontoon	
2021	Gasoline	650	center vent	aluminum pontoon	
2020	Gasoline	2350	center vent	aluminum pontoon	
5919	Diesel	0	center vent	direct vent	fixed roof, no IFR, was on way
5618	Gasoline	870	center vent	aluminum pontoon	
5901	Gasoline	50	hatch	steel pontoon	

TVA instrument readings are given in parts per million (ppm) total hydrocarbon, as methane. All TVA reading locations are on the tank roofs.

Calibration and Instrument Information

Daniel Heins used one ThermoFisher Toxic Vapor Analyzers 2020 (TVA2020), designated as TVA A95732. The EPA TVA2020 response time is approximately 4.5 seconds.

	Calibration gas ppm	A95732 ppm
08:30 calibration check	500	494
08:30 calibration check	10000	1.01%
15:45 drift check	500	441
15:45 drift check	10000	9010

EPA calibration gases

Composition	Lot #	Expiration
Air zero grade THC <1 ppm	DBJ-1-24	March 2023
Methane in air 500 ppm	1-167-64	June 2024
Methane in air 10,000 ppm	228894	February 2023